Observations on a Specimen of Bluefin Tuna *(Thunnus thynnus)* Taken in Hawaiian Waters

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The bluefin tuna, *Thunnus thynnus* (Linné), has been reported from Hawaiian waters by several authors (Fowler, 1923 and 1928; Jordan and Evermann, 1926), however, it appears only rarely in the commercial tuna catches from this area. The last confirmed report of the occurrence of this species was a landing made by a commercial long-line boat off the coast of Waianae, Oahu, in 1939. There have been reports of bluefin tuna being taken along the Kona coast of the island of Hawaii, but they have been infrequent and the identifications were not validated.

On October 3, 1950, a specimen weighing 223 pounds was captured on long-line gear by the vessel *Ilima* while fishing off the southwest coast of Oahu, at approximately 21° 26′ N., 158° 27′ W. and at an estimated depth of 60 fathoms.

Measurements on this specimen were taken on October 6, 1950, at the Kyodo Fishing Co., Ltd., Honolulu, where the fish catch of the *Ilima* was unloaded for disposition. Viscera, for subsequent laboratory examination, were also obtained at this time. The various measurements, according to the methods described by Marr and Schaefer (1949), and meristic counts are given in Table 1 for the benefit of those interested in a critical study of the morphometric characters and distribution of this fish.

In all anatomical characters examined, this specimen agreed with Godsil and Holmberg's (1950) detailed description of the Pacific bluefin tuna, *Thunnus thynnus*. It also showed remarkable agreement with Kishinouye's (1923) description of *Thunnus orientalis*, except for the author's notation regarding the division of the ureter as it enters the kidney. Kishinouye (1923: 309) states, "In *Thunnus orientalis* the two ureters meet in a figure like U, and in other forms of the Japanese tunnies they meet like the figure V." In the Hawaiian specimen, the ureters met in a figure V at a point 31 mm. within the posterior margin of the kidney. The left branch continued anteriorly for a short distance, then diverged sharply, whereas the right branch curved outward gradually from the point of division. Both observations follow Godsil and Holmberg's findings for *T. thynnus*.

Another point of apparent difference between the description given by Godsil and Holmberg and that of Kishinouye concerns the branching of the coeliac-mesenteric artery. Kishinouye (1923: 378) indicates the presence of an abortive No. 1 branch in *T. orientalis*. He states, "In [the genus *Thunnus*] the first branch is abortive and nourishes the oesophagus only, or is entirely absent." Godsil and Holmberg (1950: 42) found no No. 1 branch in *T. thynnus* and conclude, "Occasionally a capillary-size vessel is present, originating approximately where the No. 1 branch should be, and like it running to the oesophagus. This vessel is so small, and is moreover one of several originating in this region and nourishing the adjacent tissues, that it was not considered homologous with No. 1 branch." There was no evidence of a

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No. 1 branch in the Hawaiian specimen, but inasmuch as the circulatory system was not injected, this blood vessel may have been overlooked.

The coloration of the finlets in the Hawaiian specimen differed from descriptions for this form given by other authors. Both the dorsal and anal finlets were bright yellow with broad black borders, similar to those of the big-eyed tuna, *Parathunnus sibi*. Kishinouye (1923: 439) notes that in *T. orientalis* the dorsal finlets are yellow, whereas the anal finlets are silvery; both are without a black margin. Godsil (1945: 187) states that in *T. thynnus* ". . . the finlets, though frequently yellow, are not edged with black." Roedel (1948: 60) similarly remarks that *T. thynnus* "lacks . . . the black edging of the finlets found on the yellowfin tuna when caught." These discrepancies may be simply individual color variations that exist within the species or real differences that show variation with geographical distribution.

Until a more detailed comparison is made between *T. thynnus* from the eastern Pacific and *T. orientalis* from the western Pacific, the specific standing of these forms remains in doubt.

TABLE 1

MEASUREMENTS* AND MERISTIC COUNTS OF A SPECIMEN OF *Thunnus thynnus* FROM HAWAIIAN WATERS

Measurements	
Total length	1740
Head length	497
Snout to insertion first dorsal	531
Snout to insertion second dorsal	950
Snout to insertion anal	1069
Snout to insertion ventral	540
Insertion ventrals to anterior edge vent	560
Greatest depth	450
Spread caudal	561
Length longest dorsal spine	189
Length first dorsal spine	189
Length second dorsal	268
Length anal	251
Length longest dorsal finlet	59
Diameter iris	44
Length maxillary	25
Least depth caudal peduncle	47
Greatest width caudal peduncle at keels	144
Meristic Counts	
First dorsal spines	14
Second dorsal rays	15
Dorsal finlets	8
Second dorsal plus dorsal finlets	23
Anal rays	15
Anal finlets	7
Anal plus anal finlets	22
Gill rakers (first gill arch)	12+24

* Measurements are in millimeters.

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